

## AUSTRALIAN FUNGI, NEW OR UNRECORDED.

## DECADES I.-II.

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Although a considerable amount of attention has been given to the Fungus-flora of Australia, a large number of species still remain to be described, at least among the micro-fungi.

These are either new to science or have not hitherto been recorded for Australia, and since numbers of such are continually coming under my notice, it is desirable to render the descriptions available for other workers.

The introduction and cultivation of economic plants is no doubt responsible for many of these, but the native vegetation is likewise rich in new forms, and it will be my aim to record the indigenous species as well as those which are already known. In these two decades eleven new species and twelve different genera are represented.

1. ANTHOSTOMELLA DANTHONIÆ, n.sp.

Minute, black, gregarious pustules on leaves and leaf-sheaths. Perithecia covered, densely crowded and running in lines, opening at surface by pore, surrounded by pale ruddy tissue, and occupying entire depth of leaf, always much compressed. Asci cylindrical or bulging, slightly pointed and rounded at apex, tapering into short stalk at base, 8-spored,  $140-150 \times 19-20 \mu$ , but may reach a breadth of  $28 \mu$  when sporidia are partially two-rowed. Sporidia monostichous, occasionally distichous, dirty brown, very thick-walled, elliptical,  $20-26 \times 15-17 \mu$ ; paraphyses hyaline individually but pink in the mass, longer than asci, very slender ( $0.5-1 \mu$ ) with highly refractive granular contents.

Ardmona, Vic. (Robinson, 284); very common, on both surfaces of the leaf-blades but mostly on outer or lower, and sheaths of *Danthonia penicillata*, F.v.M., Sept. 1899, and May, 1902.

This is a true and destructive parasite, causing the leaves to become dried up and brittle. The black elongated pustules arranged in lines give the appearance of 'black rust' and the general resemblance to a rust is heightened by the occurrence of ruddy spots, which is characteristic at the commencement of the development of perithecia. While *D. penicillata* was severely attacked, other species adjacent were quite free.

### 2. CAMAROSPORIUM DOLICHI, n.sp.

Perithecia gregarious, erumpent, black, dark golden-brown by transmitted light, globose, membranaceous, with rotund papillate mouth. Sporules olivaceous, oblong, 4-septate, muriform, with median septum very distinct;  $16 \times 9 \mu$ .

Armadale, near Melbourne, Vic.; on leaflets of *Dolichos lablab*, L.; July, 1901.

### 3. CAMAROSPORIUM NIGRICANS, n.sp.

Perithecia very minute, globose, black and golden-brown by transmitted light, numerous, membranaceous, seated superficially on mycelial threads, no apical pore observed,  $50-57 \mu$  diam. Sporules olivaceous to golden-brown, elliptical, generally 3-septate and constricted at septa, with occasionally 1-2 longitudinal septa,  $13-15 \times 6\frac{1}{2} \mu$ .

Croydon, Vic.; on apple twigs; June, 1902.

It differs from *C. mali*, Ell. & Ev., in the much smaller perithecia, and in the sporules not being 5-8 septate; the specific name is indicative of the blackening of the twigs by the fungus.

### 4. CAPNODIUM (?) CASUARINÆ, n.sp.

Forming black, soot-like incrustations all over branches and branchlets, not readily separating. Hyphæ creeping, septate, branching, fuliginous, firm, thick-walled. Cerato-pycnidia yellowish-green to dirty green, very elongated, irregularly shaped,

variously branched, curved, enveloped more or less by brown hyphæ, may be swollen towards base and taper gradually towards apex, or may be of equal diameter throughout, opening by minute circular mouth. Pycnospores minute, oval, hyaline,  $3 \times 1\frac{1}{2} \mu$ .

Richmond River, N.S.W. (Baker); on branches and branchlets of *Casuarina torulosa*, Ait.; August, 1897.

#### 5. LEPTOSPHERIA CANNÆ, n.sp.

Perithecia scattered, minute, black, erumpent, depressed-globose, membranaceous to coriaceous, with distinct apical pore, 100-120  $\mu$  diam. Asci elongated-clavate, attenuated at base, 8-spored,  $90 \times 20-21\frac{1}{2} \mu$ ; paraphyses as long as or longer than asci, numerous, filiform. Sporidia distichous, olivaceous, fusoid, obtuse at each end, with granular contents, 3-4 septate, usually slightly curved and constricted at septa,  $18 \times 6\frac{1}{2}-8 \mu$ .

Armada, near Melbourne, Vic.; on upper surface of pale brown withered patches of leaves of *Canna indica*, L.; July, 1902.

It differs from *L. musarum*, Sacc. & Berl., in the perithecia being scattered, the longer and broader asci, and the distinct and numerous paraphyses. The leaves of *Canna* are often much torn by the wind, and large patches become brown and withered, so that the diseased appearance may not be caused by the fungus which is comparatively rare. It was associated with *Pleospora herbarum*, Pers.

#### 6. MACROSPORIUM INTERNUM, n.sp.

Forming variously coloured, velvety patches covering the pulp inside, while the skin of the Orange is healthy-looking. Mycelium consisting of dense masses of hyphæ, dark green collectively, but passing through colourless and yellowish-green phases. Hyphæ generally closely septate, copiously branched, and branches often at right angles,  $4\frac{1}{2}-5\frac{1}{2} \mu$  broad. Conidia amber-coloured at first, then olivaceous, stalked, clavate, 5-8 transverse septa, and usually more or less constricted at septa, with longitudinal septa either single or double in each segment, variable in size,  $37-75 \times 17-20 \mu$ .

Sydney, N.S.W. C. French, Junr.); on Mandarin Oranges; Sept., 1900.

This is evidently a serious disease of the Orange, rotting the entire contents, while the skin looks quite healthy at first, although ultimately becoming discoloured. Mr. French observed that 75% of the Oranges examined were black inside (Internal Black Rot), while the outside appearance of the fruit was perfect. There was a considerable amount of 'Scale' on the skin, which undoubtedly rendered the fruit an easy prey to the fungus. This mould varies considerably in its colour. It is snow-white at first, then greenish and blackish, and the conidia form a yellowish-green layer at first, then dark olivaceous.

#### 7. METASPHÆRIA LEPIDOSPERMÆ, n.sp.

Perithecia in lines close together on stem, often on inky-black patches, punctiform, minute, black, membranaceous, with pore, erumpent through stomata,  $72 \mu$  diam. Asci very delicate and rupturing as soon as ripe, cylindric-clavate, rounded and thickened at apex, narrowing towards base, and somewhat pointed at the end,  $86-90 \times 13-15 \mu$ ; paraphyses slender, as long as asci. Sporidia biseriate, elongated-fusoid to elongated-clavate, slightly curved, typically 3-septate, and medium septum most distinct, not constricted at septa, at first hyaline then honey-yellow,  $25-26\frac{1}{2} \times 6\frac{1}{2}-7 \mu$ .

Werribee, Vic. (C. French, Junr.); on *Lepidosperma* sp.; May, 1902.

The stems were conspicuously discoloured with inky-black patches, which were isolated or run together, and either partially or entirely surrounding the stem. The minute perithecia running in lines are just visible to the naked eye, and while they frequently occur on the discoloured stem they are also found on the black patches. Hundreds of plants are attacked and dying; even the young green shoots are affected, and die off before reaching maturity.

#### 8. PHOMA BERBERINA, Sacc. & Roum.

Sporules fusoid, hyaline,  $6-7 \times 2-2\frac{1}{2} \mu$ .

Malvern, near Melbourne, Vic.; on withered portions of leaf of *Berberis vulgaris*, L.; July, 1902.

This species has only hitherto been recorded on twigs of the Barberry in France.

9. PHOMA STROBILIGENA, Desm., var. MICROSPORA, Sacc.

Near Melbourne, Vic.; on scales of cones of *Pinus insignis*, Dougl.; July, 1902.

10. PHOMA PASSIFLORÆ, n.sp.

Perithecia numerous, gregarious, erumpent, dark brown, seated near the margin of tawny sunken spots, 150-200  $\mu$  diam. Sporules broadly elliptical, rounded at both ends, hyaline to subhyaline, with finely granular contents, 12-16  $\times$  6-7  $\mu$ .

New South Wales; on fruit of *Passiflora edulis*, Sims.

11. PHYLLOSTICTA ASCLEPIADEARUM, West.

Malvern, Vic.; on upper surface of leaves of *Hoya carnos*a, R.Br.; March, 1900.

It presents similar milk-white blotches as in *Pleospora asclepiadearum*.

12. PHYLLOSTICTA COPROSMÆ, n.sp.

Spots greyish, with distinct, narrow dark red raised margin, surrounded on both sides of leaf by indefinite ruddy zone, gradually becoming paler towards centre as well as outside. Perithecia gregarious, on upper surface, erumpent, globose, ruddy brown by transmitted light, with slightly papillate mouth, 250-330  $\mu$  diam. Sporules pale pink in mass, individually hyaline, elliptic, rounded at both ends, 6  $\times$  2-2 $\frac{1}{2}$   $\mu$ .

Sunbury, Vic. (C. French, Junr.); on leaves of *Coprosma* sp.; July, 1901.

13. PHYLLOSTICTA ERIOBOTRYÆ, Thuem.

Armadale, Vic.; on green leaves of Loquat; April, 1900.

The dry greyish brown spots extend from the midrib towards the margin between the lateral veins, and cause considerable damage to the otherwise green leaf.

## 14. PHYLLOSTICTA GROSSULARIÆ, Sacc.

Armadale, Vic.; on Gooseberry leaves; Jan., 1899.

Towards the margin of the leaves large areas become blotched by the spots running together, and the leaves soon fall.

## 15. PHYLLOSTICTA MYRTICOLA, Speg.

Orbost, Vic. (Pescott); on living leaves of *Eugenia smithii*, Poir.; July, 1900.

This species has only hitherto been recorded on the living leaves of a species of *Eugenia* in Brazil, and is new to Australia.

## 16. PLEOSPORA ASCLEPIADEARUM, n.sp.

Hyphæ adjoining perithecia sooty-brown, septate, branched, twisting and anastomosing, up to  $7-9\ \mu$  broad. Perithecia somewhat gregarious, at first covered by epidermis, then partially naked, minute, black, punctiform, globose, ostiolum minute,  $190-225\ \mu$  diam. Asci cylindrical-oblong, rounded at apex, tapering into a slightly dilated knob at point of attachment, about  $100 \times 17-19\ \mu$ ; paraphyses hyaline, about length of asci, slightly swollen at apex ( $11\ \mu$  broad), stained pale red by potassium iodide-iodine. Sporidia distichous usually at base and monostichous at apex, dark olive-green, ellipsoid, 5-septate, constricted at septa, generally with four longitudinal septa, and occasionally slightly muriform,  $28-30 \times 10-12\ \mu$ .

South Australia (Molineux); on leaves of *Hoya carnosa*, R.Br.; July, 1898.

This disease has a very characteristic appearance. The upper surface of the leaves has a large milk-white blotch, sometimes occupying fully one-half the entire surface.

*P. diplospora*, Ell. & Ev., found on dead stems of *Asclepias incarnata*, L., in America, has much broader asci, and the straw-coloured to brown sporidia may be 7-septate.

The *Phyllosticta asclepiadearum*, West., is probably an early stage of this species, and, therefore, I have given it the same specific name.

## 17. RAMULARIA HORDEI, n.sp.

Forming whitish patches not very conspicuous on brownish lenticular spots, which may run together and become dark brown. Hyphæ ramifying in leaf, septate, branched, and bearing at surface the conidia. Conidia straight or fusoid, hyaline, acute or blunt at ends, 1-septate when mature, not constricted at septum,  $15-17 \times 3 \mu$ .

New South Wales (Farrer); on leaves of Barley; Oct., 1900.

There is only one species of *Ramularia* recorded on Gramineæ, viz., *R. graminicola*, Peck, on living leaves of *Poa serotina*, Ehrh., but the conidia are  $25-35 \mu$  long, and spuriously 1-septate, whereas in this species they are decidedly 1-septate.

## 18. RAMULARIA PRIMULÆ, Thuem.

Armadale, Vic.; on leaves of *Primula sinensis*, Sabine; July, 1902.

It forms large pallid areas, with more or less orbicular centres. The spots on the Primrose leaves are very common in the winter months, but the fructification of the fungus is rarely obtainable except from perfectly fresh specimens.

## 19. SEPTORIA STELLARIÆ, Rob. &amp; Desm.

Armadale, near Melbourne, Vic.; on languishing leaves of *Stellaria media*, Cyrill; July, 1900.

The spots were distinct at first, and then became confluent.

## 20. VALSA AMBIENS (Pers.), Fr.

Perithecia usually 5-6 imbedded in stroma. Spermogonial stage (*Cytospora carphosperma*) with sporules escaping in tendrils of a whitish to yellowish colour.

Mordialloc, Vic.; on dead bark of Apple; July, 1901.